

California's Water Recycling Initiatives

And efforts to irrigate freeways

Mary Grace Pawson PE, GHD Inc.

Chair, WaterReuse California Regulatory & Legislative
Committee



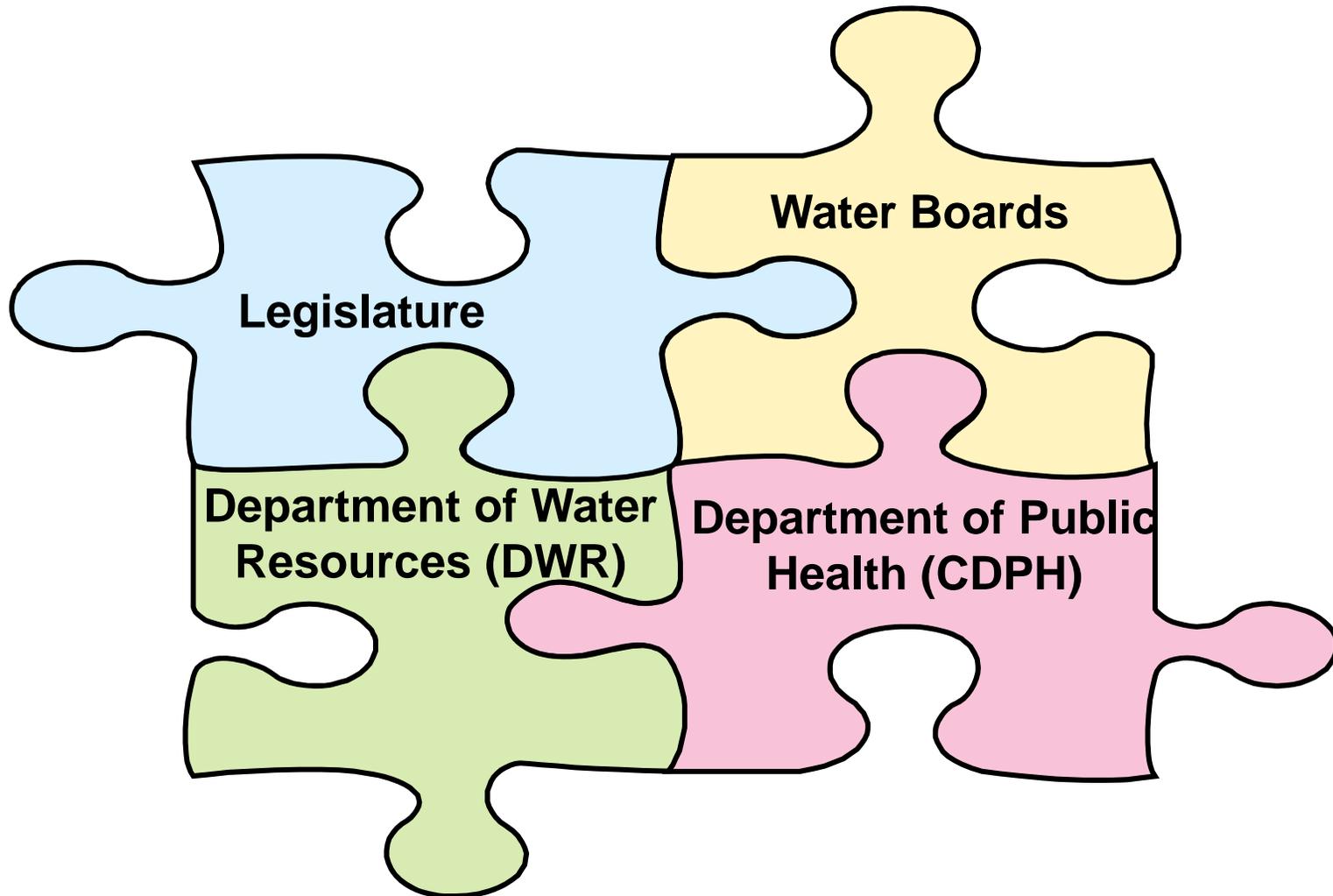
California has dual drivers for developing and using recycled water



Water supply: southern portion of the state is arid and imports water

Water quality: northern river systems host sensitive fisheries & discharges are discouraged

Even with these drivers our institutional and regulatory scheme is complex



The Legislature says lots of nice things about recycling in hopes of encouraging it

“The Legislature further finds and declares that the utilization of recycled water by local communities for domestic, agricultural, industrial, recreational, and fish and wildlife purposes will contribute to the peace, health, safety and welfare of the people of the state.” (Water. Code, § 13511.)

“It is the intention of the Legislature that the state undertake all possible steps to encourage development of water recycling facilities so that recycled water may be made available to help meet the growing water requirements of the state.” (Water Code, § 13512.)

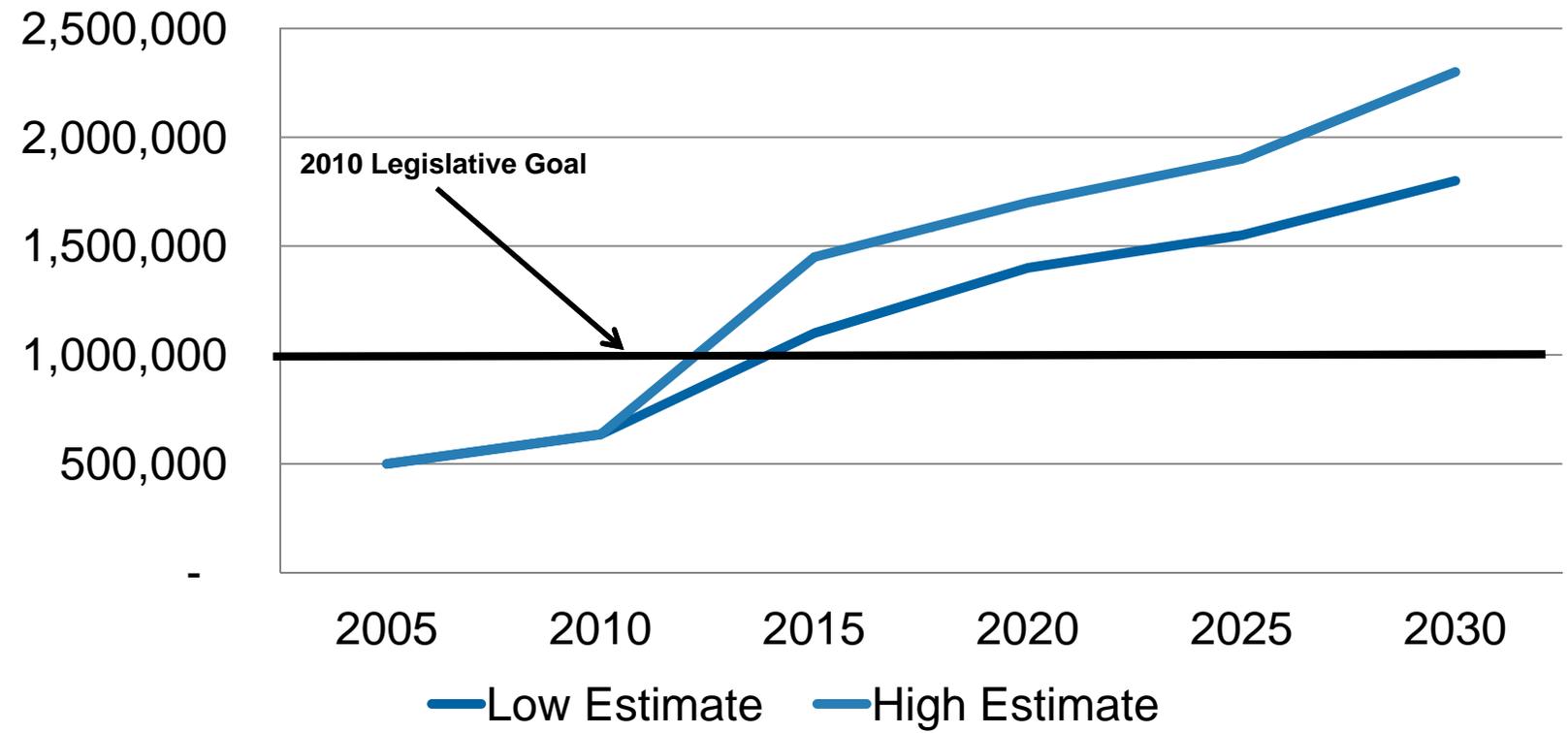
“The people of the state have a primary interest in the development of facilities to recycle water to supplement existing water supplies and to minimize the impacts of growing demand for new water on sensitive natural water bodies.” (Water Code, § 13529(c).)

The Legislature also established two goals for recycled water – neither of which have been met

- 500,000 acre-feet of recycled water use by 1990
- 1,000,000 acre-feet of recycled water use by 2000

DWR is our state's "water planner" and has included bold recycling goals in its plans

Recycled Water Use in Acre Feet



Source: 2009 California Water Plan

The Water Boards are responsible for environmental water quality



Regulate discharges of waste to land, surface waters and groundwater

Administer the Porter Cologne Water Quality Act Water which includes the permitting scheme for recycled water

Maintain an MOA with CDPH for recycled water

The Water Boards can issue one of four types of permits to water recyclers and sometimes the customers

- National Pollutant Discharge Elimination System (NPDES) Permit: can be used when the water recycler also has a surface water discharge
- Waste Discharge Requirements: can be used for projects that recycle 100% of treated effluent or can be issued as a separate permit to an entity that also has an NPDES permit
- Master Reclamation Permits: a more flexible form of WDR that allows permitted entities to add new customers in a streamlined fashion
- The General Irrigation Permit: a statewide permit that covers specifically landscape irrigation with tertiary treated water

The Water Boards also have to balance a fundamental tension that is embedded in Porter Cologne

**“use of potable water...is unreasonable and a waste...where recycled water is reasonably available”
(Water Code Section 13550 et seq)**

**“ master reclamation permits shall include...waste discharge requirements”
(Water Code Section 13520 et seq)**

CDPH protects public health



Develop health-based criteria for drinking water and recycled water

Permit drinking water supplies and advise the water board on recycled water supplies

Administer Titles 17 and 22 of the California Code of Regulations which govern cross connection control, allowable recycled water uses and approved recycled water treatment technologies

Title 22 treatment levels and allowable uses are one of California's more recognizable exports

Un-disinfected Secondary

- Orchards & vineyards with no contact
- Non-food bearing trees & nursery stock
- Fodder & fiber crops for pasture animals (except dairy animals)
- Seed crops not eaten by humans
- Food crops pasteurized during production

Secondary 23

- Cemeteries
- Freeway landscaping
- Restricted access golf courses
- Nursery & sod farms with public access
- Pasture for dairy animals
- Controlled access landscapes (not parks, playground or school)

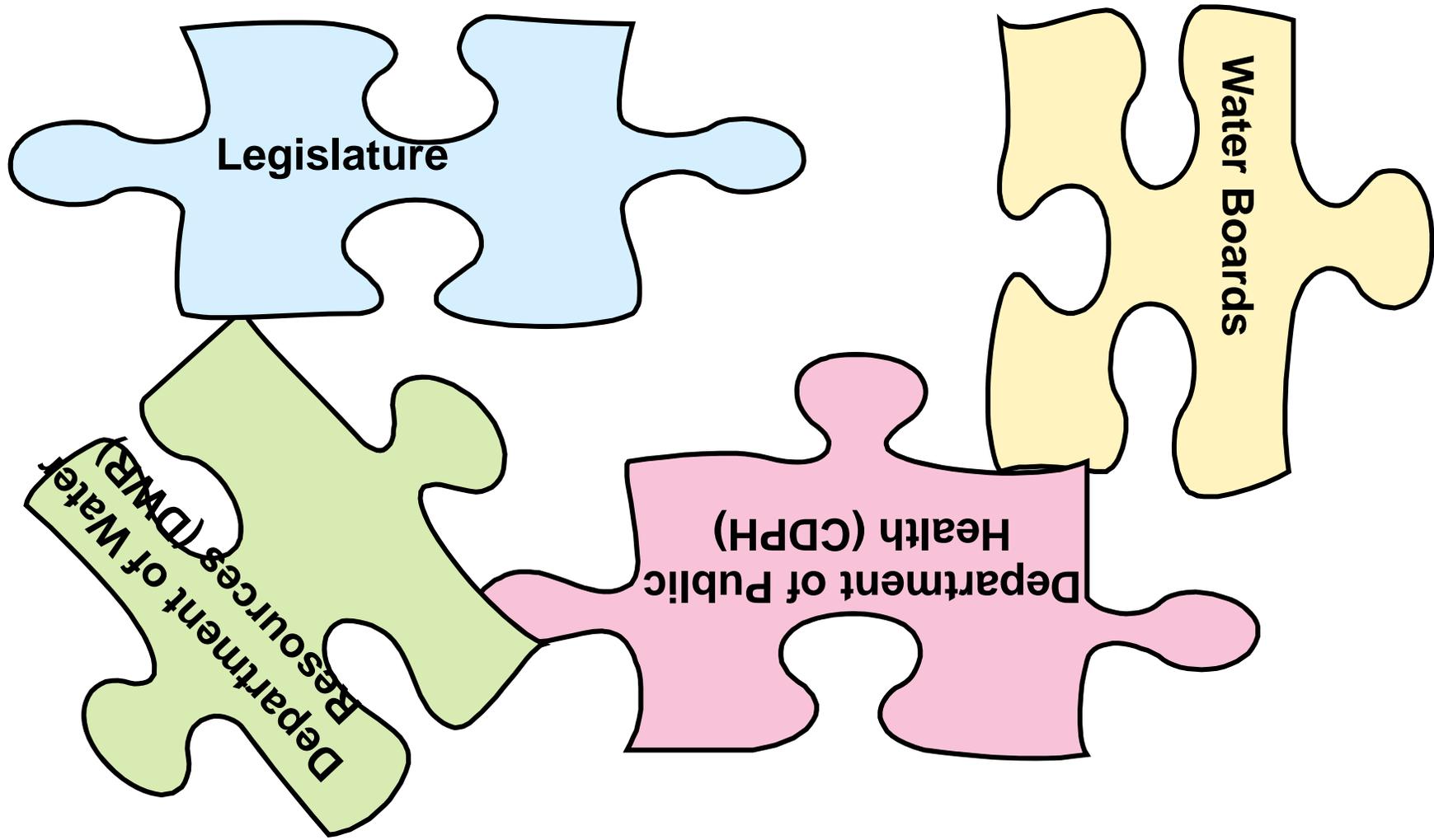
Secondary 2.2

- Food crops with no contact

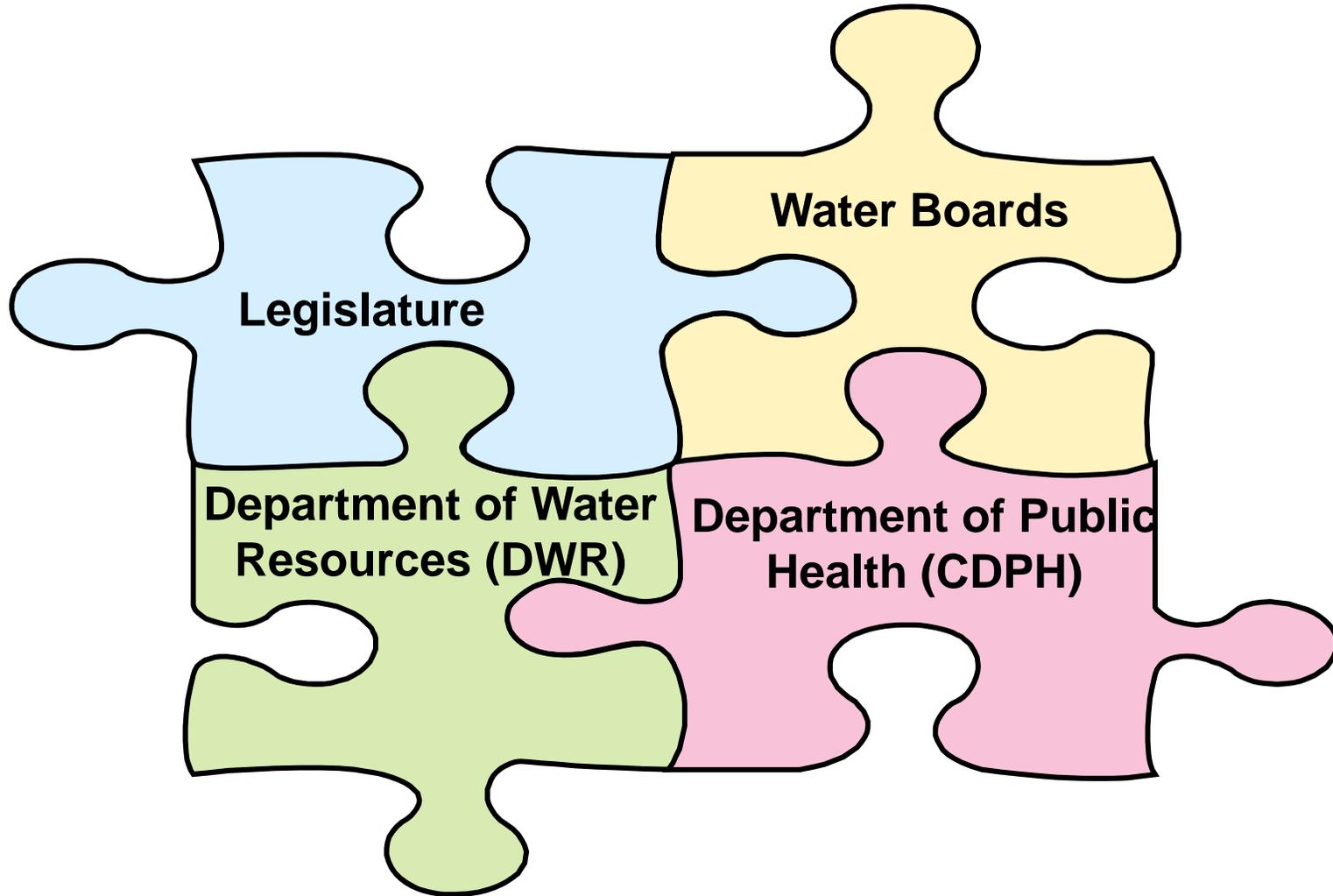
Tertiary

- All food crops
- Parks & playgrounds
- School yards
- Residential landscaping
- Any other irrigation use
- Cooling & process water
- Toilet flushing & drain priming

WaterReuse California works to keep these pieces stuck together



WaterReuse California works to keep these pieces stuck together



Our legislative tradition focuses on advancing recycled water use



- Over fifty pieces of successful legislation in a 32 year history
- Three pieces of legislation, including our first piece of legislation, were focused on landscape and highway irrigation

AB 2217 (Baker) - 1990



- Directed the Department of Transportation to require the use of recycled water for freeway landscaping when it was available
- Required the Department to permit local agencies to place recycled water transmissions mains in its right-of-way

SB 2095 (Johnson) - 2000



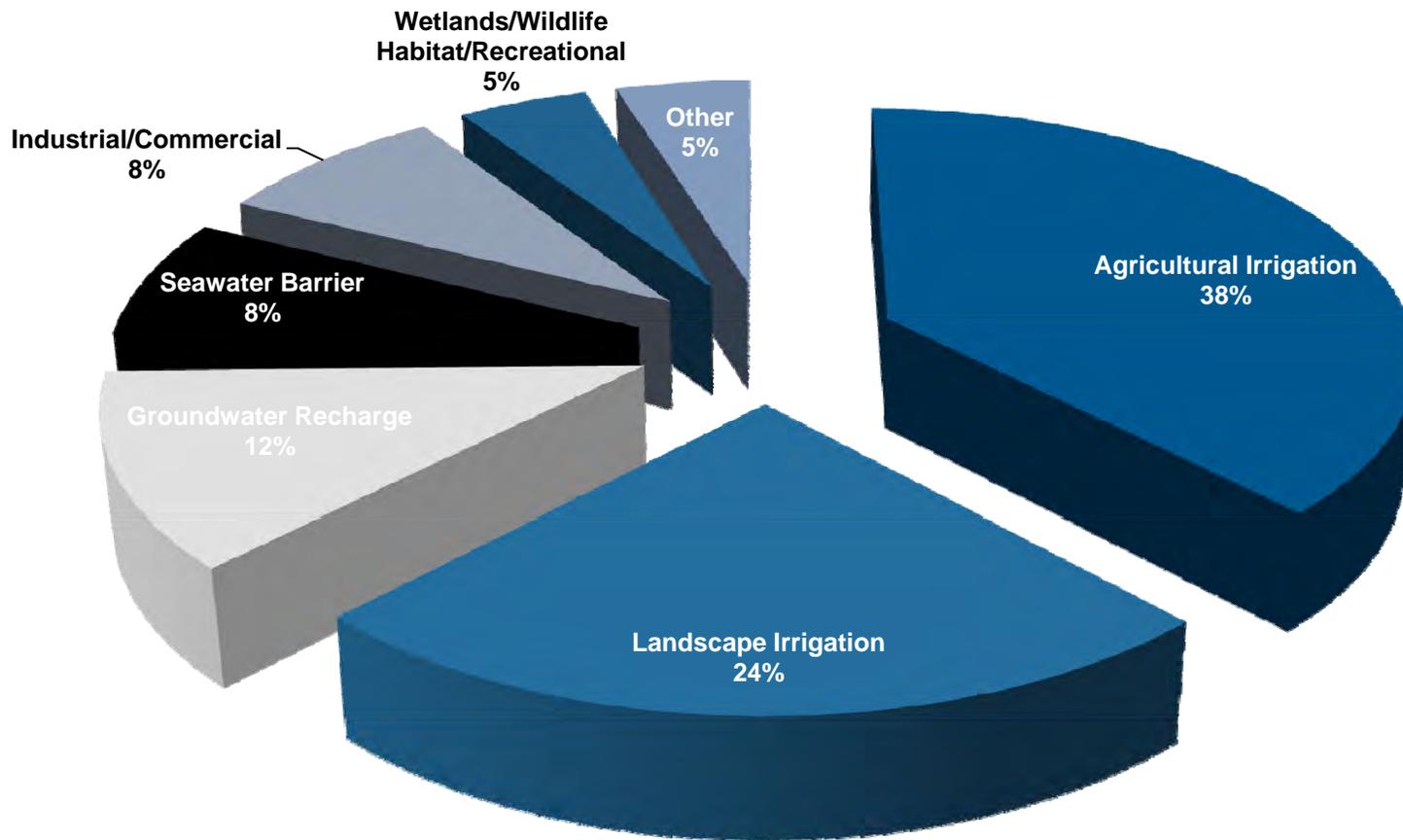
- Required cities and counties to adopt a recycled water use ordinance within 180 days of being notified that recycled water could be available in 10-years
- Important precedent in planning coordination that made it easier to get recycled water infrastructure in the ground

AB 371 (Goldberg) - 2005



- Requires the Departments of Transportation and General Services to prepare to accept recycled water upon receipt of notice that it would be available in 10 years
- Further reinforces the goal of “joint” planning and the commitment by the state to advance recycled water use through example

So how are we doing?



A few thoughts on California's trends

- Agricultural reuse, often with disinfected secondary, remains the highest category of use
- Landscape irrigation projects, usually with tertiary treated water, are “the norm” for urban areas
- Highway irrigation is generally associated with the landscape projects, even though it does not require tertiary treated water
- Groundwater recharge, which requires higher levels of treatment, is catching up because:
 - Dual-plumbing systems aren't required, which helps offset the costs associated with treatment
 - There is a general public sentiment that “more treatment is better” –which does not always make sense

Successful partnerships with CalTrans



•San Diego County

- Multiple independent projects contributing to current annual use of approximately 30,000 AFY of reuse

•Orange County

- Orange County Water District & Irvine Ranch Water District
- Purple pipes originated in IRWD's recycled water system
- "This is your water or you have no water" also originated in IRWD

Successful partnerships with CalTrans



• Los Angeles County

- LA County CSD partners with dozens of local water suppliers to deliver recycled water for irrigation use including freeway use

• Marin County

- Marin Municipal Water District's 20-year program includes irrigation of CalTrans rights of ways

Famous “bumpy” project



- Delta Diablo Sanitation District
- Successfully delivers recycled water for landscape irrigation & cooling towers
- Attempted to incorporate “purple pipe” irrigation line in Highway 4 widening
- CalTrans refused because of indefinite timeline on actual deliveries
- Impetus for AB 371

A few thoughts on our highway irrigation trends

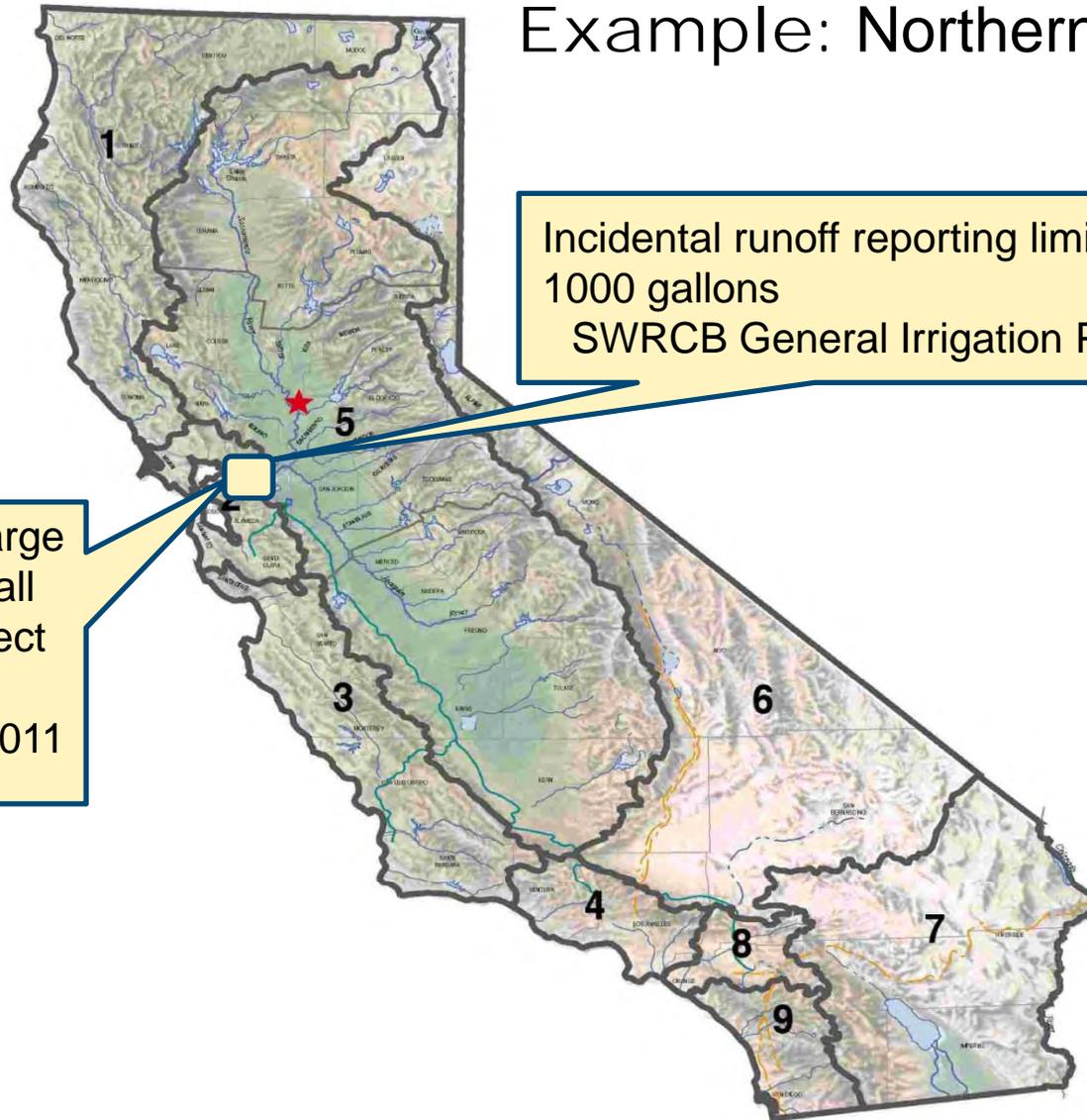
- Easier to do in the arid portions of the State
- Easier to do when the recycled water purveyor also has water supply powers –can invoke the doctrine of “this is your water or you have none”
- Highways can “allowably” be irrigated with secondary effluent but that doesn’t matter – this use tends to be developed as part of larger urban projects
- Demonstrates that recycled water in California isn’t always “user friendly”

Despite strong effort and successful programs, there remain a number of barriers to reuse

- Customers irrigating with recycled water can have substantially stricter site management requirements than customers irrigating with other types of water
- The permitting process, allowable uses of recycled water and monitoring requirements vary throughout the California
- Monitoring requirements can exceed the requirements for potable water



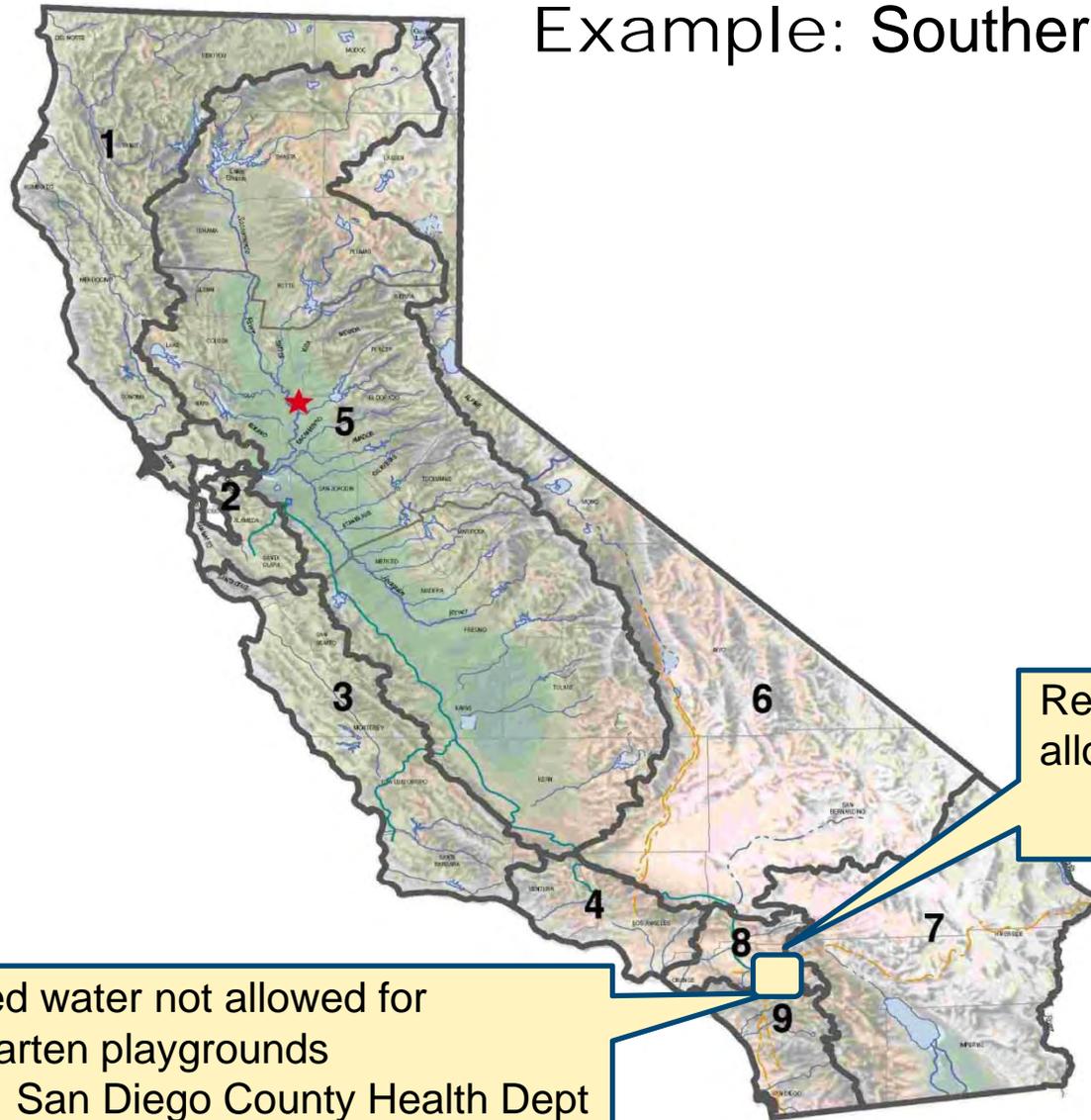
Example: Northern California



Incidental runoff reporting limit is
1000 gallons
SWRCB General Irrigation Permit

The incidental discharge
of recycled water..shall
not unreasonably affect
beneficial uses
RWQCB Order 96-011

Example: Southern California



Recycled water
allowed on playfields
CCR Title 22

Recycled water not allowed for
kindergarten playgrounds
San Diego County Health Dept

Proposal: place recycled water in its own section of the Water Code and within the continuum of safe water uses

Porter Cologne

Law of Recycling

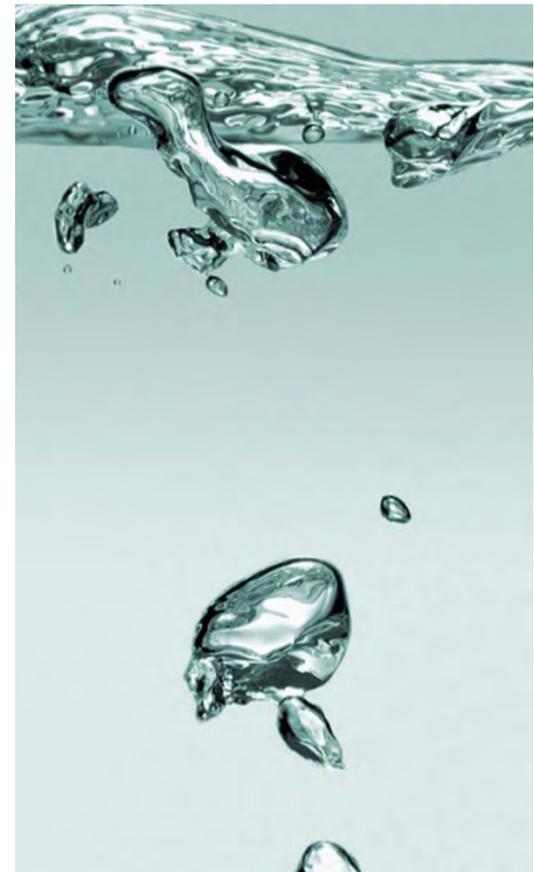
Safe Drinking Water Act



Treatment and Management Practices Appropriate for Intended Use

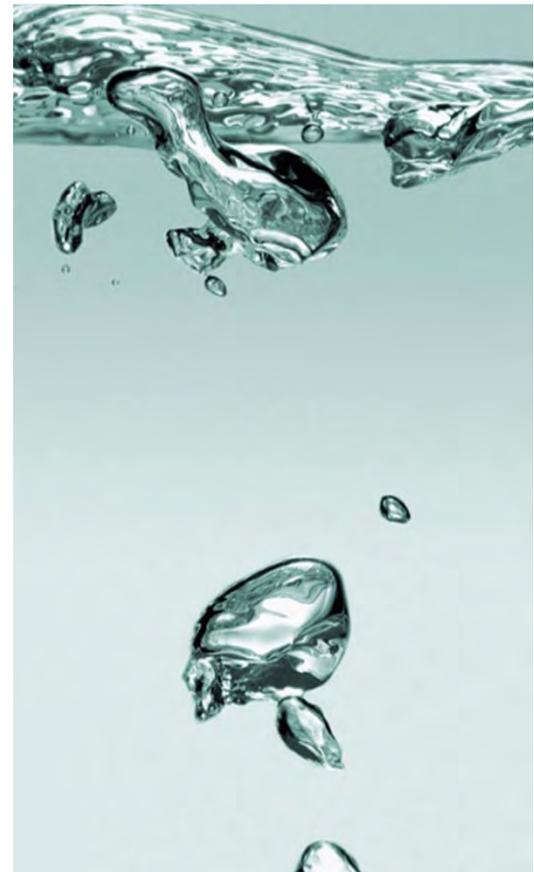
Specifics

- Removes tertiary and advanced treated recycled water from the definition of waste
- Defines recycled water as a resource
- Eliminates requirements for low-level spill reporting in the Health & Safety and Water Codes
- Clearly outlines the roles and responsibilities of the regulatory agencies



Specifics

- Establishes a clear permitting system for recycled water distinct from the four types of waste discharge permits under Porter Cologne
- For water treated with our most current engineering technology and used for drinking water augmentation, the law directs the Department of public Health to develop drinking water criteria and issue permits for these projects



Lessons we keep learning

- Adopting and then working to improve the statutory and regulatory framework for water recycling is important for establishing a credible, safe, alternative supply
- Coordinating and minimizing the number of state agencies involved is a good idea if you can do it
- Emphasizing good irrigation management, regardless of the water supply used minimizes the perception that irrigating with recycled water “hard”
- Embracing and acting on coordinated land and water use planning makes projects easier to do
- Simplifying and streamlining the permitting process makes it much easier to bring on customers